

REMARKS

Applicants respectfully request reconsideration of the present U.S. Patent application as amended herein. Claims 17, 23 and 29 have been amended. Claim 22, 28 and 34 has been canceled. No claims have been added. Thus, claims 17-21 and 23-27 and 29-33 are pending.

Claim Rejections - 35 U.S.C. § 103(a) -

Claims 17-34 were rejected as being unpatentable over U.S. Patent No. 5,574,700 issued to Kuzma (*Kuzma*) in view of U.S. Patent No. 5,519,790 issued to Manning (*Manning*). For at least the following reasons, Applicants submit that claims 17-34 are not rendered obvious by *Kuzma* and *Manning*.

Claim 17 recites:

- converting a frame of analog image data to a frame of digital image data;
- capturing the frame of digital image data;
- converting subsequent frames of analog image data to frames of digital image data;
- comparing pixel data of the converted subsequent frames to pixel data of the captured frame to identify a converted subsequent frame having pixel data that differs from the pixel data of the captured frame by a threshold amount;
- capturing the identified frame; and
- sending the captured frames to a display object, wherein the non-captured frames are discarded.

Thus, Applicant claims capturing a frame, capturing a subsequent frame whose pixel data differs from pixel data of the captured frame by a threshold, and sending the captured frames to a display object. Claim 23 similarly recites capturing a frame, capturing a subsequent frame whose pixel data differs from pixel data of the captured frame by a threshold, and sending the captured frames to a display object.

Applicants agree with the Office Action that *Kuzma* does not teach comparing pixel data between frames and capturing frames that differ by a threshold amount. *Kuzma* discusses an encoding technique using a key (i.e., reference) frame to determine whether subsequent frames are still or moving picture frames, and what strategy to use to

encode/decode the frames. See, e.g., col. 2, lines 25 to 29; col. 5, lines 11 to 20 and lines 49 to 65; col. 6, lines 30 to 33; col. 7, lines 16 to 34.

Manning is cited to teach comparison of frames and selective capture of frames.

Specifically, the Office Action states:

Manning teaches that after a key frame is established the next frame is compared to the key frame to determine whether the next frame is another key frame, capture the new key frame (See Fig. 2a-2c, items 42, 50, in description See col. 2, Lines 27-32).

See page 3, first full paragraph. Applicants agree the *Manning* discloses a technique for determining a key frame. However, *Manning* does not disclose discarding frames. In contrast, *Manning* discloses a pixel-by-pixel comparison in which only the pixels that differ from the key frame by a threshold amount (as determined by a Pythagorean distance formula) are stored in a buffer to be displayed. See, for example, col. 4, lines 38-42, 50-53, 66-67 and col. 5, lines 1-3. Thus, *Manning* discloses capture of elements of *all* frames.

In rejecting claim 22, the Office Action states:

As to claim 22, regarding discarding uncaptured frames, Kuzma teaches the subsequent frames with a difference value less than the predetermined value, the frame is recognized as being used in still image (See Col. 5, Lines 58-60) and does not need to be put in the frame buffer, therefore is discarded.

See pages 3-4. However, *Kuzma* discloses determining encoding and determines a transmission rate based on whether a frame represents a still image or a moving image. Moreover, *Kuzma* discloses a lower rate at which still frame data is transmitted.

Kuzma does not disclose discarding redundant still images that do not represent a change from the reference frame. *Kuzma* does not disclose halting transmission of frames until a subsequent frame differs from a reference frame by a predetermined amount. Furthermore, because *Manning* does not disclose discarding frames, *Manning* does not disclose halting transmission of frames until a subsequent frame differs from a reference frame by a predetermined amount. Therefore, no combination of *Kuzma* and *Manning* can teach or suggest the invention as claimed in claim 17.

Claims 18-21 depend from claim 17. Claims 24-27 depend from claim 23. Because dependent claims necessarily include the limitations of the independent claims

from which they depend, Applicant submits that claims 18-21 and 24-27 are not rendered obvious by *Kuzma* and *Manning* for at least the reasons set forth above.

Claim 29 recites:

- a frame conversion unit to convert frames of analog image data to frames of digital image data;
- a buffer coupled with the frame conversion unit to store a frame of digital image data and subsequent converted frames;
- a processor coupled with the buffer to compare pixel data of the frame of digital image data and pixel data from the subsequent converted frames to identify a subsequent converted frame having pixel data that differs from the pixel data of the frame of digital image data by a threshold amount; and
- a transmission unit to send the frame of digital image data and the identified frame to a display object.

Thus, Applicant claims a buffer to store a frame of digital image data, a processor to identify a subsequent converted frame whose pixel data differs from pixel data of the frame of digital image data by a threshold, and a transmission unit to send the frame of digital image data and the identified frame to a display object.

As discussed above, no combination of *Kuzma* and *Manning* teaches or suggests halting transmission of frames until a subsequent frame differs from a reference frame by a predetermined amount. Therefore, not combination of *Kuzma* and *Manning* can teach or suggest the invention as claimed in claim 29.

Claims 30-33 depend from claim 29. Because dependent claims necessarily include all limitations of the independent claims from which they depend, Applicant submits that claims 30-33 are not anticipated by *Kuzma* for at least the reasons set forth above.

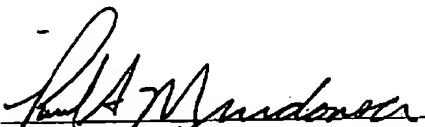
Conclusion

For at least the foregoing reasons, Applicants submit that the rejections have been overcome. Therefore, claims 17-21 and 23-27 and 29-33 are in condition for allowance and such action is earnestly solicited. The Examiner is respectfully requested to contact the undersigned by telephone if such contact would further the examination of the present application.

Please charge any shortages and credit any overcharges to our Deposit Account number 02-2666.

Respectfully submitted,
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Application No. 09/653,613
Atty. Docket No. 004589.P003

Examiner Leonid Shapiro
Art Unit 2673

MARKED VERSION OF THE AMENDED CLAIMS

17. (Amended) A method comprising:

converting a frame of analog image data to a frame of digital image data [that includes pixel data];

capturing the frame of digital image data;

converting subsequent frames of analog image data to frames of digital image data [that include pixel data];

comparing [the] pixel data of the converted subsequent frames to [the] pixel data of the captured frame to identify a converted subsequent frame having [whose] pixel data that differs from the pixel data of the captured frame by a threshold amount;

capturing the identified frame; and

sending the captured frames to a display object, wherein the non-captured frames are discarded.

23. (Amended) An article of manufacture comprising a machine accessible medium having content that when accessed provides instructions to cause an electronic system to:

convert a frame of analog image data to a frame of digital image data [that includes pixel data];

capture the frame of digital image data;

convert subsequent frames of analog image data to frames of digital image data [that include pixel data];

compare [the] pixel data of the converted subsequent frames to [the] pixel data of the captured frame to identify a converted subsequent frame having [whose] pixel data that differs from the pixel data of the captured frame by a threshold amount;

capture the identified frame; and

send the captured frames to a display object, wherein the non-captured frames are discarded.

29. (Amended) An apparatus comprising:

- a frame conversion unit to convert frames of analog image data to frames of digital image data [that includes pixel data];
- a buffer coupled with the frame conversion unit to store a frame of digital image data and subsequent converted frames;
- a processor coupled with the buffer to compare pixel data of the frame of digital image data and pixel data from the subsequent converted frames to identify a subsequent converted frame having [whose] pixel data that differs from the pixel data of the frame of digital image data by a threshold amount; and
- a transmission unit to send the frame of digital image data and the identified frame to a display object.